

AMENDMENTS TO THE CLAIMS:

1. (Currently amended) A power converter for supplying an output power to a load, comprising:

a switching device having a switching input, a switching output, and a control input for enabling or disabling said switching device from conducting current from said switching input to said switching output; and

a network wherein said switching device input, said switching device output, and the load are connected together in a circuit;

a bias winding in said circuit for producing a bias voltage representative of the output power; and

a control circuit for (a) determining the rate of change of said bias voltage, (b) characterizing said rate of change, and (c) controlling said control input as a result of the characterization (b);[[.]]

the control circuit being responsive to the characterized bias voltage rate of change to control the switching device and

(i) effect a heavy load mode of operation of the power converter when the rate of change is above a predetermined level and

(ii) effect a light load mode of operation of operation of the power converter when the rate of change is below the predetermined level.

2. (Original) The power converter of claim 1, further comprising a power input portion and a power output portion for providing said output power, wherein said circuit is in said power output portion.

3. (Original) The power converter of claim 2, further comprising a connecting portion for coupling said power input portion to said power output portion, wherein said connecting portion includes an inductor as part of said power output portion, wherein said bias winding is coupled in series with said inductor.

4. (Original) The power converter of claim 3, wherein said connecting portion includes a transformer having a primary winding as part of said power input portion and a secondary winding which includes said inductor.

5. (Original) The power converter of claim 1, wherein said control circuit is adapted so that the determination (a) includes comparing said bias voltage at a selected time relative to a selected starting value of said bias voltage, and so that the characterization (b) includes comparing the change in said bias voltage in (a) to a reference.

6. (Original) The power converter of claim 2, wherein said control circuit is adapted so that the determination (a) includes comparing said bias voltage at a selected time relative to a selected starting value of said bias voltage, and so that the characterization (b) includes comparing the change in said bias voltage in (a) to a reference.

7. (Original) The power converter of claim 3, wherein said control circuit is adapted so that the determination (a) includes comparing said bias voltage at a selected time relative to a selected starting value of said bias voltage, and so that the characterization (b) includes comparing the change in said bias voltage in (a) to a reference.

8. (Original) The power converter of claim 4, wherein said control circuit is adapted so that the determination (a) includes comparing said bias voltage at a selected time relative to a selected starting value of said bias voltage, and so that the characterization (b) includes comparing the change in said bias voltage in (a) to a reference.

9. (Cancelled)

10. (Original) The power converter of claim 5, wherein said characterization (b) includes determining whether the rate of change is either high or low compared to said reference.

11. (Original) The power converter of claim 6, wherein said characterization (b) includes determining whether the rate of change is either high or low compared to said reference.

12. (Original) The power converter of claim 7, wherein said characterization (b) includes determining whether the rate of change is either high or low compared to said reference.

13. (Original) The power converter of claim 8, wherein said characterization (b) includes determining whether the rate of change is either high or low compared to said reference.

14. (Cancelled)

15. (Currently amended) In a power converter, a method for supplying an output power to a load, comprising the steps of:

providing a power input portion;

providing a power output portion comprising a switching device having a switching input, a switching output, and a control input for enabling or disabling said switching device from conducting current from said switching input to said switching output, and a network wherein said switching device input, said switching device output, and the load are connected together in a circuit;

providing a bias voltage representative of the output power;

determining the rate of change of said bias voltage;

characterizing said rate of change; and

controlling said control input as a result of said step of characterizing to control the switching device and

(i) effect a heavy load mode of operation of the power converter when the rate of change is above a predetermined level and

(ii) effect a light load mode of operation of the power converter when the rate of change is below the predetermined level.

16. (Original) The method of claim 15, wherein said step of determining includes comparing said bias voltage at a selected time relative to a selected starting value of said bias voltage, and wherein said step of characterizing includes comparing the change in said bias voltage in said step of determining to a reference.

17. (Original) The method of claim 16, wherein said step of characterizing includes determining whether the rate of change is either high or low compared to said reference.

18. (Currently amended) A power converter for supplying an output power to a load, comprising:

a magnetic storage element;

a switch on a primary side of the magnetic storage element;

a synchronous rectifier on a secondary side of the magnetic storage element having a switching input, a switching output and a control input for enabling or disabling said synchronous rectifier from conducting current from said switching input to said switching output;

a network wherein said switching input, said switching output and the load are connected together in a circuit;

a bias winding in said circuit for producing a bias voltage representative of the output power; and

a control circuit operatively connected to:

(a) determine the rate of change of said bias voltage,

(b) characterize said rate of change as indicative of a light or heavy load on the power converter, and

(c) control said control input as a result of the characterization (b).

19. (Previously presented) The power converter of claim 18, further comprising a power input portion and a power output portion for providing said output power, wherein said circuit is in said power output portion.

20. (Previously presented) The power converter of claim 19, further comprising a connecting portion for coupling said power input portion to said power output portion, wherein said connecting portion includes an inductor as part of said power output portion, wherein said bias winding is coupled in series with said inductor.

21. (Previously presented) The power converter of claim 20, wherein said connecting portion includes a transformer having a primary winding as part of said power input portion and a secondary winding which includes said inductor.

22. (Previously presented) The power converter of claim 18, wherein said control circuit is adapted so that the determination (a) includes comparing said bias voltage at a selected time relative to a selected starting value of said bias voltage, and so that the characterization (b) includes comparing the change in said bias voltage in (a) to a reference.

23. (Previously presented) The power converter of claim 22, wherein said characterization (b) includes determining whether the rate of change is either high or low compared to said reference.

24. (Currently amended) In a power converter, a method for supplying an output power to a load, comprising the steps of:

providing a magnetic storage element;

providing a power input portion comprising a switch;

providing a power output portion comprising a synchronous rectifier having a switching input, a switching output and a control input for enabling or disabling said synchronous rectifier from conducting current from said switching input to said switching output, and a network wherein said switching input, said switching output and the load are connected together to a circuit;

providing a bias voltage representative of the output power;

characterized in that said method further comprises the steps of:

determining the rate of change of said bias voltage;

characterizing said rate of change as indicative of a light or a heavy load on the power converter; and

controlling said control input as a result of said step of characterizing.

25. (Previously presented) The method of claim 24, wherein said step of determining includes comparing said bias voltage at a selected time relative to a selected starting value of said bias voltage, and wherein said step of characterizing includes comparing the change in said bias voltage in said step of determining to a reference.

26. (Previously presented) The method of claim 25, wherein said step of characterizing includes determining whether the rate of change is either high or low compared to said reference.

27. (Previously presented) The power converter of claim 1, wherein the control circuit is responsive to rate of change of the bias voltage to control said control input to:

open the switching device and prevent conduction of current therethrough to the load in a first, light load mode of operation of the power converter; and

close the switching device and cause conduction of current therethrough to the load in a second, normal load mode of operation.

28. (Previously presented) The method of claim 15, wherein controlling said control input comprises, in response to the rate of change of the bias voltage comprises:

opening the switching device and preventing conduction of current therethrough to the load in a first, light load mode of operation of the power converter; and

closing the switching device and causing conduction of current therethrough to the load in a second, normal load mode of operation.

29. (Previously presented) The power converter of claim 18, wherein the control circuit is responsive to rate of change of the bias voltage to control said control input to:

disable the synchronous rectifier and prevent conduction of current therethrough to the load in a first, light load mode of operation of the power converter; and

enable the synchronous rectifier and cause conduction of current therethrough to the load in a second, normal load mode of operation.

30. (Previously presented) The method of claim 24, wherein controlling said control input comprises, in response to the rate of change of the bias voltage comprises:

disabling the synchronous rectifier and preventing conduction of current therethrough to the load in a first, light load mode of operation of the power converter; and

enabling the synchronous rectifier and causing conduction of current therethrough to the load in a second, normal load mode of operation.

31. (New) The power converter according to claim 1, wherein the control circuit enables the switching device when the load is heavy and disables the switching device when the load is light.

32. (New) The power converter according to claim 31, further comprising a diode in said circuit to serve as a secondary switch in a power output portion of the power converter when the switching device is disabled in the light load mode of operation of the power converter.

33. (New) The power converter according to claim 32, wherein the switch device is a semiconductor switching device in parallel with the synchronous rectifier.

34. (New) The power converter according to claim 33, wherein the diode is a discrete component distinct from the semiconductor switching device.

35. (New) The power converter according to claim 33, wherein the diode is a body diode of the semiconductor switching device.

36. (New) The method of claim 15, further comprising enabling the switching device when the load is heavy and disabling the switching device when the load is light.

37. (New) The method according to claim 36, further comprising providing a diode as a secondary switch in the power output portion of the power converter when the switching device is disabled in the light load mode of operation of the power converter.

38. (New) The method according to claim 37, further comprising providing a semiconductor switching device as the switching device of the power output portion of the power converter in parallel with the diode.

39. (New) The method according to claim 38, wherein providing a diode comprises providing a diode that is a discrete component distinct from the semiconductor switching device.

40. (New) The method according to claim 38, wherein providing a diode comprises providing a body diode of the semiconductor switching device.